U. S. CONSUMER PRODUCT SAFETY COMMISSION

SAMPLE COLLECTION REPORT

1. Flag	2. Date Collected	3. Sample type & number
	5/25/93	[XXX] Physical R-830-5015
		[ ] Documentary

4a. Product name	4b. Model	4c. NEISS	5. Assignment ref.
Window Screen (vinyl coated fiberglass)	n/a	1828	930512CCN1610

6. Complete for import samples
- a. Port of Entry : n/a
- b. Entry # & date :
- c. Country of Origin :
- d. HSUSA code :
- e. Customs Contact :

7. MIS: 32626

8. Hours: a. Activity 2 hrs. b. Travel 1 hr.

9a. Home RO: FOCR

9b. Collecting RO: FOCR

10. Sample Cost: No Cost

11. Invoice value of lot: $ 0.00

12. Size of lot: 12 other window screens (consumer)

13. Manufacturer/Importer	14. Shipper/Foreign Mfr.	15. Dealer/Import Broker
Phifer Wire Products Co.	Same as #13.	Janet Carmack - CONSUMER
Box 1700		3284 Humber
Tuscaloosa, AL 35403		Trenton, MI 48183
ID #	ID#	ID#

16. Supporting documents attached:
- a. Invoice # & date: n/a
- b. Date Shipped: n/a
- c. Shipping record # & date: n/a
- d. Affidavit signer's name, title & date: n/a

17. Product Identification:
Two pieces of vinyl coated fiberglass window screens that the consumer cut out of two separate screen frames at her home during the IDI on 5/25/93. Sub 1 piece is approx. 18-inches x 24-inches. Sub 2 piece is approx. 14-inches x 20-inches. The manufacturer of the wire screen is Phifer Wire Products Co., as listed in Block #13 of this Sample Collection Report.

18. Reason for collection & analysis needed: FHSA___ CPSAXX FFA___ PPPA___ RSA___
Consumer & family complain of terrible odor coming from screens. Consumer developed headache, and upset stomach while transporting them. Analysis: Cathy Kelsey, CECA.

19. Summary of Field Screening:
The screens do emit a foul odor.

20. Sample Size, Method of Collection:
Two pieces of vinyl coated fiberglass window screens obtained from the consumer. Sample was held overnight in locked desk of locked DET-RP office. Both subs were identified with sample #, date, initials, ans sub #. Sample was placed in Ziploc plastic bag (supplied by consumer.) I then placed the sample in a Jiffy Pak which was then officially CPSC sealed with Form 165. Placed in another Jiffy Pak for shipment.

21. Identification on sample	22. Identification on seal
"R-830-5015 5/25/93 SUB 1 - 2 JJT"	"R-830-5015 5/26/93 James J. Testasecca"

23a. Sample delivered to	23b. Date	24. Orig. report/records sent to
United Parcel Service, Detroit, MI	5/26/93	FOCR

25. Laboratory/Office: ESEL [ ] HSHL [ ] CERM [XXX] CECA [ ] OTHER [ ]

26. Remarks
Consumer filed a consumer complaint regarding the product to CPSC on 5/4/93. An on-site IDI was performed (IDI Task No. 930512CCN1610), the sample was collected from the consumer, and an inspection of the dealer was performed. A copy of the consumer complaint was attached to Sample C/R Lab Copy.

27. Related Samples None

28a. Collector's name, title & employee #	28b. Collector's signature & date
James J. Testasecca, Investigator, 8052	James J Testasecca 5/26/93

29a. Reviewer's name, title & employee #	29b. Reviewer's signature & date

Distribution: Orig [ ] Lab [ ] Fiscal [ ] Data [ ] Hdqtr [ ] Other [X]

CPSC Form 166 (Rev. 9/91)

FIELD ACTIVITY COVERSHEET

1. REGION/STATE
FOCR

2. OPERATION *(Check One)*
(XX) Inspection ( ) Establishment Visit
( ) Telephone Contact ( ) Investigation
( ) Other

3. DATE
5/25/93

4. NUMBER *(For RO Use)*

5. ESTABLISHMENT
Name PELLA WINDOW & DOOR CO.
Address 22119 Eureka Rd.
City Taylor State Michigan Zip 48180 Telephone No.

6. RELATED FIRM ( ) Parent (XX) Headquarters ( ) Subsidiary ( ) Other
Name The Pella Corporation City Pella State Iowa

7. PRODUCTS COVERED
window screens manufactured by
Phifer Wire Products, Tuscaloosa, AL

8. OTHER CONSUMER PRODUCTS
windows, screens, home products

9. ESTABLISHMENT TYPE
( ) Manufacturer ( ) Importer
( ) Wholesaler ( ) Own Label Distributor
(XX) Retailer ( ) Repackager
( ) Other

10. ANNUAL PRODUCTION
Product Covered $ unk. Units
Other Products $ unk. Units

11. I.S. BUSINESS
% Received 95
% Shipped 0

12. SAMPLES COLLECTED
none

13. MIS CODE
32626

14. HOURS
Activity 6 hrs.
Travel 2 hrs.

15. REASON FOR ACTIVITY *(Assignment Reference)*
Follow-up to IDI Task No. 930512CCN1610.

16. ANNOUNCED ( ) **Rationale for Announced Inspection**
UNANNOUNCED ( )

17. EMPLOYEE'S NAME
James J. Testasecca

TITLE
Resident Investigator
DET-RP

SIGNATURE
James J. Testasecca

18. (X) ENDORSEMENT ( ) REMARKS ( ) SUMMARY ( ) OTHER

This firm was inspected as follow-up to an IDI where window screens were giving off a foul objectionable odor. The manager explained that Phifer Wire Pdts., Tuscaloosa, AL 35403 has a replacement program underway.

FH: As needed.

19. REVIEWER'S NAME
JAMES A. MIERSCH

TITLE
SPSI

SIGNATURE
James A Miersch

20. REVIEW DATE
6-2-93

21. DISTRIBUTION
FO CR IDI's

CPSC FORM NO. 167 (Revised 8/86)

PELLA WINDOW & DOOR CO.
22119 Eureka Rd.
Taylor, Michigan 48180

EIR 5/25/93 JJT

INSPECTIONAL FINDINGS

I conducted the inspection of this Pella window dealer as a follow-up to IDI Task No. 930512CCN1610. The IDI involved the vinyl coated fiberglass window screens at a consumer's home that emitted a foul smelling odor. The consumer & her husband purchased the windows & window screens from this Pella window dealer. The manufacturer of the window screens (screen material), Phifer Wire Products, P.O. Box 1700, Tuscaloosa, AL 35403, admitted that vinyl coated fiberglass screens that were made in 1988 & 1989 had a problem of causing a foul odor, because the vinyl coated fiberglass gradually breaks down when sunlight hits the screens. Phifer is in the process of replacing the consumer's window screens free of charge, and may also be in the process of replacing others around the country.

I showed my credentials & issued the Notice of Inspection to Russ E. Delong - Sales Manger of the dealer. Mr. Delong provided me with most of the inspectional information contained within this report.

I told Mr. Delong about the consumer's incident, and explained to him the purpose of my visit. Mr. Delong stated that he was aware of the consumer's problem with the foul smelling odor from the vinyl coated fiberglass screen, because he had spoken with the consumer about it. Mr. Delong stated that Phifer Wire Products admitted responsibility in the matter (as told to him by his firm's district headquarters in West Bloomfield, MI), and that to the best of his knowledge Phifer is in the process of replacing the consumer's window screens free of charge. Mr. Delong stated that besides the consumer's incident, there has been only one other consumer complaint of an identical nature involving a consumer who had purchased vinyl coated fiberglass window screens from his store, and this occurred about one month previously. He stated that he has heard that Pella's district headquarters & Phifer have already replaced that consumer's window screens. Mr. Delong stated that he knows of no other incidents, but that there are several other Pella dealers in the Southeast Michigan district. He stated that he has been told by his district headquarters that if any other consumers who have these screens call his store, his store (he or the other employees) should provide the consumer with Phifer's toll free phone number, because Phifer has a replacement program in effect to replace the window screens, and that Phifer would pay for the replacements. When I asked him, Mr. Delong stated that he had no service bulletin, or any other document involving the replacement program. Mr. Delong stated that The Pella Corp., 102 Main St., Pella, Iowa 50219 is Pella's corporate headquarters, and that Pella only assembles the screens to the frames. (He also stated that Pella manufactures its windows & assembles the screens at this Iowa location.)

Mr. Delong stated that Phifer Wire Products was the actual manufacturer of the screen material.

Mr. Delong stated that when he received the first complaint from the other consumer, he telephoned Phifer Wire Products. He stated that he believed he spoke with a Mr. White at Phifer, but he was not positive of the name. He stated that he remembered that Mr. White had told him that the problem involved the vinyl coated fiberglass screens made in 1988 & 1989, but he did not recall if Mr. White told him what had caused the problem.

At Mr. Delong's suggestion (because he did not know any more information about the problem), I telephoned Pella's district headquarters, Pella Window & Door Co., 2000 Haggerty Rd., West Bloomfield, MI 48322, and spoke with Ronald Hanson - Service Manager. I discussed the matter with him. Mr. Hanson stated that he was aware of the problem of the Phifer vinyl coated screens giving off a foul smelling odor. Mr. Hanson stated that he believed that his firm (southeast Michigan headquarters) had received its first complaint about the screens sometime in 1992. When I asked him as to how many complaints his firm had received from its customers (consumers), Mr. Hanson stated that he did not know for sure, because his firm did not keep a log of this. However, he estimated that there had been a total of 15 complaints. He stated that this estimated number of complaints covers the Pella stores in his district (southeast Michigan). He stated that he was not aware of any illnesses associated with the estimated 15 complaints. Mr. Hanson stated that to the best of his knowledge, Phifer Wire Products has either replaced these estimated 15 consumers' window screens, or are in the process of doing so for the recent complainants. Regarding any nationwide problem, Mr. Hanson stated that only Pella's corporate headquarters in Iowa could discuss information about Pella's sales & complaints nationwide, as he did not have that information.

Mr. Hanson stated that he was aware of the local TV broadcast that the consumer had referred to, but that when he checked it out, he learned that it did not involve any Pella window screens. He stated that involved other window & screen manufacturers and/or assemblers.

Mr. Hanson stated that because Phifer Wire Products manufactured the vinyl coated fiberglass screen material, and consequently was responsible for the problem, Phifer has assumed the cost & actions to replace the consumers window screens when they lodge their complaints with his firm. He stated that when Pella customers (consumers) now call his firm if they have the subject screens, they are given the Phifer toll free phone number, as Phifer does all of the screen replacements, and not Pella.

PELLA WINDOW & DOOR CO.
22119 Eureka Rd.
Taylor, Michigan 48180

EIR 5/25/93 JJT

James J. Testasecca

JAMES J. TESTASECCA
Resident Investigator
Detroit Resident Post

U.S. CONSUMER PRODUCT SAFETY COMMISSION

NOTICE OF INSPECTION

1. DATE: 5/25/93

2. TIME: 11:00 A.M. _____ P.M.

3. FROM (Area Office and Address)
U. S. CONSUMER PRODUCT SAFETY COMMISSION
McNAMARA FED. BLDG. ROOM M-[redacted]5
477 MICHIGAN AVENUE
DETROIT, MICHIGAN 48226

4. TO

A. NAME AND TITLE OF INDIVIDUAL: ROGER E. DECONG — SALES MANAGER

B. FIRM NAME: PELLA WINDOW & DOOR CO.

C. NUMBER AND STREET ADDRESS: 22119 EUREKA RD

D. CITY, STATE AND ZIP CODE: TAYLOR, MICHIGAN 48180

Notice of Inspection is hereby given pursuant to:

- Flammable Fabrics Act (15 U.S.C. 1191 *et seq.*);
- Federal Trade Commission Act (15 U.S.C. 41 *et seq.*);
- Sections 16, 19 and 27 of the Consumer Product Safety Act (15 U.S.C. 2065, 2068 and 2076)
- Section 704(a) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 374(a)) [Authority for inspections in connection with the Poison Prevention Packaging Act of 1970 (15 U.S.C. 1471 *et seq.*)] and/or
- Section 11(b) of the Federal Hazardous Substances Act as Amended (15 U.S.C. 1270(b)).

Refer to the back of this form for a discussion of inspectional authority and for pertinent statutory language.

5. PURPOSES OF INSPECTION AND NATURE OF INFORMATION TO BE OBTAINED AND/OR COPIED.

TASK NO. 930512CCN1610

U.S. CONSUMER PRODUCT SAFETY COMMISSION

AUTHORIZATION FOR RELEASE OF NAME

Thank you for assisting us in collecting information on a potential product safety problem. The Consumer Product Safety Commission depends on concerned people to share product safety information with us. We maintain a record of this information, and use it to assist us in identifying and resolving product safety problems.

We routinely forward this information to manufacturers and private labelers to inform them of the involvement of their product in an accident situation. We also give the information to others requesting information about specific products. Manufacturers need the individual's name so that they can obtain additional information on the product or accident situation.

Would you please indicate on the bottom of this page whether you will allow us to disclose your name. If you request that your name remain confidential, we will of course, honor that request. After you have indicated your preference, please sign your name and date the document on the lines provided.

[✓] You are hereby authorized to disclose my name and address with the information collected on this case.

[ ] My identity is to remain confidential.

Janet M. Carmack
(Signature)

5/25/93
(Date)

U.S. GOVERNMENT PRINTING OFFICE: 1984—804-726

FOR OFFICIAL USE ONLY

C

CONSUMER PRODUCT INCIDENT REPORT

L-283

1. NAME OF RESPONDENT	2. PHONE NO. (HOME)	WORK
Janet Carmack	313-675-1445	same

3. STREET ADDRESS	4. CITY	STATE	ZIP CODE
3284 Humber St.	Trenton	MI	48183

5. DESCRIBE INCIDENT OR HAZARD, INCLUDING DATA ON INJURIES (USE 2ND PGE IF NEEDED
'91 to present, Consumer and family members noticed a chemical odor emitting from window screens whenever it was sunny, but no one developed any symptoms.

4/29/93 Consumer saw a local TV news broadcast on WDIV, Channel 4, Detroit, MI, alleging a certain type window screen manufactured one incident two products -cont.-

6. DATE OF INCIDENTS	7. IF INJURY OR NEAR MISS OBTAIN AGE/SEX AND DESCRIBE INJURY:	8. IF VICTIM DIFFERENT FROM RESPONDENT, PROVIDE NAME AND RELATIONSHIP
'91	44 YR/F headache and upset stomach	self self

9. DESCRIPTION OF PRODUCT	10. BRAND NAME
14 fiberglass window screens w/grey vinyl coating	unknown

11. MFR/DISTRIBUTOR NAME, ADDR. & PHONE	12. MODEL, SERIAL NUMBERS
Phifer Wire Products, Inc. unknown unknown, AL (zip code unknown) 205-345-2120 unknown 1-800-874-3007 22119 unknown unknown	unknown 13. DEALER'S NAME, ADDRESS & PHONE Pella Window & Door Co. Eureka Rd. (across from Southland) Taylor, MI 48180 & Artvale 313-287-4220

14. WAS THE PRODUCT DAMAGED, REPAIRED OR MODIFIED? YES x NO IF YES, BEFORE OR AFTER THE INCIDENT? after DESCRIBE:	15. PRODUCT PURCHASED NEW x USED DATE PURCHASED '88 AGE 3 yr. est. 16. DOES PRODUCT HAVE WARNING LABELS? IF SO, NOTE: none
damaged there was no visible damage, but screens emit a chemical odor	

17. HAVE YOU CONTACTED THE MANUFACTURER? YES x NO IF NOT, DO YOU PLAN TO CONTACT THEM? YES NO OTHER?	18. IS THE PRODUCT STILL AVAILABLE? YES x NO IF NOT, ITS DISPOSITION	19. MAY WE USE YOUR NAME WITH THIS REPORT? YES x NO

FOR ADMINISTRATION USE

20. DATE RECEIVED	21. RECEIVED BY (NAME & OFFICE)	22. DOCUMENT NO.
05/04/93	ldm, HL	H350011A1

23. FOLLOW-UP ACTION	24. PRODUCT CODE(S)
IDI # 930512CCN1610	

25. DISTRIBUTION	26. ENDORSER'S NAME & TITLE

CPSC FORM 175 (9/89)

by Phifer Wire Products, Inc., emitted chemical fumes that were making some people sick.

5/3/93 The hard plastic corner frame of 1 of consumer's 14 window screens broke. Consumer took screen to dealer for repair and while driving in car with screen consumer developed a headache and upset stomach from the fumes emitting from screen.

Consumer explained problem to dealer (name unknown), who had received similar complaints and offered to replace consumer's screens with a different type of screen made by the same screen manufacturer. Consumer accepted the offer.

5/3/93 Consumer called and explained problem to Charlie Brakefield (title unknown) at screen manufacturer, who said the fiberglass screens had been coated with vinyl that gradually breaks down when sunlight hits screens causing odor. Mr. Brakefield said the screens were made in '88 and '89.

Consumer obtained CPSC hotline telephone number from TV news broadcast.

STATE OF MICHIGAN

JOHN ENGLER, GOVERNOR

DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN/MARTIN L. KING JR., BLVD.
P.O. BOX 30195, LANSING, MICHIGAN 48909
Vernice Davis Anthony, Director

X2B0768

MFR/PRVLBR NOTIFIED 7/11/94
No Comments made
Comments attached
Excisions/Revisions
Firm has not requested
MFR/PRVLBR Also notified 5/11/93
No Comments made
Comments attached
Excisions/Revisions
Firm has not requested

October 16, 1992

Mr. Freeman
Injury Information Clearing House
Consumer Product Safety commission (CPSC)
Washington, D.C. 20207

Dear Mr. Freeman:

Subject: Phifer Window Screens

This follows our telephone conversation of October 9, 1992. We have received some health complaints from citizens who have used window screens manufactured by Phifer Wire Products, Inc., P.O. Box 1700, Tuscaloosa, Alabama 35403-1700. These window screens were distributed prior to June 1989 (between 1988-89) by the Weathervan Window Incorporated, 4th Court, Brighton, Michigan 48116. It is possible that some of the window screens of the alleged batch may have been sold nationwide.

It has been alleged that as a result of interaction with sun rays these window screens change color and emit toxic compounds causing indoor air pollution. As a result, some citizens have complained of some adverse health effects (allergies and chronic fatigue immune deficiency syndrome [CFIDS]).

We will appreciate if CPSC investigate this alleged problem and take suitable actions (report, advisory, etc.). We will gladly cooperate with the CPSC in obtaining materials and information from the concerned citizens. I hope that CPSC will take up this project. Please write and contact me [redacted] for additional information.

I sincerely look forward to hearing from you at your earliest convenience.

Sincerely,

[redacted]

Toxicologist
Health Risk Assessment

NOV 5 1992

cc: John Hesse
Harold Humphrey

X2B0768

I-6

Z-25 10/91

JAN 19 1993

If you have any changes, additions, or comments you wish to make concerning your attached report, please make them in the space below.

I confirm that the information in the attached report (including any changes, additions, or comments I have made) is accurate to the best of my knowledge and belief.

[redacted] 1/26/93

Signature Date

☒ I request that you do not release my name.

☐ You may release my name to the manufacturer but I request that you not release it to the general public.

☐ You may release my name to the manufacturer and to the public.

PHIFER WIRE PRODUCTS, INC.
P. O. BOX 1700 • TUSCALOOSA, ALABAMA 35403-1700 U.S.A.

■ CHARLES E. MORGAN
Executive Vice President and Corporate Counsel

May 11, 1993

Freedom of Information Officer
Office of the Secretary
U.S. CONSUMER PRODUCTS SAFETY COMMISSION
Washington, DC 20207

Re: FOIA Request S-304051:Window Screens

Dear Sir or Madam:

This is in response to your April 23, 1993 letter on the above referenced request. Phifer Wire Products, Inc. has no objection to disclosure of the requested information. We would, however, like to receive notification of any subsequent requests.

There has been extensive analysis done on our product. I have enclosed a complete copy of a report by Dr. Clifton Crutchfield which summarizes the results of four independent research studies on the safety of our screening material manufactured during 1988 and 1989. I have also enclosed a short statement from Dr. Robert G. Meeks summarizing the results of research conducted on our current production material, i.e., material that was manufactured between 1989 and the current date. If you should receive any consumer complaints or requests for information on this subject, please forward them copies of these enclosures.

Sincerely yours,

PHIFER WIRE PRODUCTS, INC.

Charles Morgan

Charles Morgan

CM:jh

Enclosures

PHONE 205/345-2120 • FAX 205/759-4450 • TELEX 261326 (PHIF UR)

HEALTH EFFECTS GROUP, INC.

P O Box 41778 Tucson, Arizona 85717 (602) 888-4442

Toxicology
Environmental Health
Industrial Hygiene

Emissions From Polymer Coated Fiberglass Screening Material

A Summary of Study Findings

Submitted by:

Clifton D. Crutchfield, Ph.D.
Certified Industrial Hygienist

April 27, 1993

INTRODUCTION

The following analysis was conducted at the request of Mr. Charles Morgan, Executive Vice President of Phifer Wire Products, Inc., P.O. Box 1700, Tuscaloosa, AL. In response to the request, an analysis has been made of the results of several studies that were conducted to identify and measure emission products from polymer coated fiberglass screening material. Degradation of the polymer coating on installed screens, presumably due to solar exposure, has been reported by a number of users.

Degradation of the screening material has been characterized by changes in appearance and by the presence of unpleasant or irritating odors. Concerns about possible health effects associated with either employee or resident exposures to emissions from degraded screens has prompted a series of four studies by four independent environmental organizations. A listing of the studies by type, date, and organization is included in Table I.

BRIEF SUMMARY OF STUDY RESULTS

Health Effects Group (HEG) Study:

A 1.5 M^2 sample of degraded sun screen material was observed to have a strong, penetrating odor after being confined in a sealed container. Gas chromatograph/mass spectrometry (GC/MS) analysis of air samples collected from a glass container holding the material produced a number of peaks indicating low levels of volatile organic compounds (VOCs). Direct headspace sampling of the screen material at elevated temperatures, coupled with cryogenic trapping to concentrate emission products, identified the following types of compounds which were present at low levels:

- Four-to-seven carbon ketones
  (methyl ethyl ketone and methyl vinyl ketone were most prevalent)
- Pthalates
- Aliphatic hydrocarbons
- Aldehydes
- Trimethylsilanol
- Benzene

It was noted that the ketones were possible sources of the penetrating odors associated with the degraded screen material.

University of Alabama at Birmingham (UAB) Study:

The UAB study consisted of performing headspace sampling followed by GC/MS analysis of 30 cm^2 samples of weathered and non-weathered screen material. Weathered material produced peak heights that were 10 - 200 times larger than non-weathered samples. Tentative identification of a number of low mass, low boiling point compounds emitted by the screening material was made. Compound identifications were tentative because analytical peak areas (a reflection of amounts emitted) were too small to obtain reliable mass spectral identifications. The compounds appeared to be low levels of oxidation products of the screen coating, various phthalates associated with plasticers used to manufacture the screen, and color pigments.

A second headspace study was conducted at an elevated temperature of 140 ^{o}C to increase emission rates and enhance compound identification. Seven specific compounds thought to be oxidation products of the screen material and associated plasticizers were identified with this technique, including ketones, amines, and weak organic acids. A brief review of the toxicity associated with the identified compounds concluded that they can be strong irritants to the nose, eyes, upper respiratory tract, and mucous membranes. No reference to exposure levels associated with such irritant effects was provided. The report stressed that chronic or long-term health effects were not expected from exposures to the degraded screen material.

Envirocomp (EC) Study:

The EC study involved an indoor air quality assessment of a residence in Hatfield, Massachusetts. Objectional odors from selected screens had been reported by the residence owner. The strongest odors were experienced during periods when direct sunlight contacted the screens. It was also reported that the odors were worse when the screens were newer. For purposes of this study, used screens were removed from storage and re-installed the day before sampling was performed.

A faint odor was reported by the residents when sampling was initiated in the afternoon of a sunny day (T_{out} = 68 ^{o}F; T_{in} = 73 ^{o}F). Screened windows were in direct sunlight. 100 liter air samples were collected over a 2-hour period on in-line charcoal and Tenax tubes, which were analyzed by GC/MS. Sample locations were in the vicinity of the offensive screens.

Sample results showed a number of low-level unidentifiable peaks of aliphatic hydrocarbons. Specific compounds identified in all samples included xylenes (all isomers), toluene, ethanol, methyl chloroform, and 2-methyl propane. Measured airborne concentrations ranged from 15 - 83 micrograms per cubic meter of air (ug/M^3). The current OSHA exposure limit for toluene is approximately 4,000 times higher than the highest toluene

concentration (83 ug/M^3) detected in the home. The other compounds were present in concentrations that were at least 10,000 times lower than their respective OSHA exposure limits. It was acknowledged in the report that workplace exposure limits are not applicable to a residential setting. The OSHA limits were reported as a comparison basis for what is considered to be safe in the work environment.

The EC report concluded in part that:

> "Based on the nature of the specifically identified chemicals, it is suggested that they are not from the window screens. These are relatively common chemicals that may be found in a residence from materials such as paints, cleaning compounds, and pressurized containers. They were all found at very low levels, well below what would generally be considered a health hazard. The levels found were also well below the reported odor thresholds, meaning that on the day sampled, the average person would not be able to smell them."

The report also noted that the screens had been stored in the garage for several months, so that the nature or rate of off-gassed vapors could have changed.

Clayton Environmental Consultants (CEC) Report:

The CEC report consisted of two phases. The first phase involved indoor air quality evaluations in three homes whose residents had submitted a variety of complaints, including foul odors, coughing, allergies, burning eyes, and upper respiratory infections.

Direct-reading measurements of temperature, humidity, respirable particulate matter, and carbon dioxide were made in the three homes. Indoor temperature ranges (T_{out} = 27-29 ^{o}F; T_{in} = 73.8-78.5 ^{o}F) were above the ASHRAE recommended range of 68-74 ^{o}F. Relative humidities (19-26%) were below recommended comfort levels. Respirable particulate matter (10-20 ug/M^3) and carbon dioxide levels (400-450 parts per million parts of air) were both below maximum recommended levels.

Air samples were collected in each home for inorganic acids, amines, and VOCs. Analytical results for the inorganic acids and amines in the three homes were all below the analytical limit of detection.

VOC samples were collected on Tenax tubes and analyzed by GC/MS. The following compounds were detected in one or more of the homes: benzene, ethylbenzene, styrene, toluene, 1,1,1-trichloroethane, and xylenes. Each of these compounds is common to modern households. Each compound's measured concentration was less than 10 ug/M^3, with two exceptions. In one home,

36 ug/M^3 of toluene and 300 ug/M^3 of 1,1,1-trichloroethane were detected. A list of tentatively identified compounds were present in concentrations ranging from 0.2 - 10 ug/M^3.

The USEPA has reported concentrations of hydrocarbons in non-industrial indoor air as follows:

Contaminant	Concentration Range, ug/M^3
Aromatic hydrocarbons	21 - 1,100
Aliphatic hydrocarbons	11 - 270

Another paper by B. Siefert that was cited in the study stated that total VOC concentrations indoors greater than 300 ug/M^3 are a point of concern to occupants. Total VOC concentrations in one of the three homes tested exceeded this level.

The CEC report on the indoor air quality assessments concluded that the sampling does not clearly indicate that the screen material is the single or even the major contributor.

The second phase of the CEC study involved headspace analyses of samples of screen material by GC/MS at temperatures of 30, 50, and 100 °C. A variety of volatile organics were detected, typically at fractional microgram levels. The highest reported levels were typically ketones, benzene, and phthalates. 1,1,1-trichloroethane was not observed to be a significant emission product from the screens.

CONCLUSIONS

Emissions from polymer coated fiberglass screening material manufactured by Phifer Wire, Inc. have been characterized in three separate studies. Each study used a gas chromatograph/mass spectrometer to separate and identify compounds that were volatilized from samples of the screen material at elevated temperatures. The samples of screen material were at various stages of degradation that were not characterized by any quantifiable scale.

A variety of compounds, represented as peaks on GC/MS output graphs, were observed in the samples. Most peaks were present in such low concentrations that they could not be reliably identified. Compounds emitted from screen samples at high enough concentrations to be specifically identified have shown a fair degree of consistency. Ketones, benzene, and phthalates seem to be the most prevalent emission products during analyses of the screening material. All compounds were emitted at very low levels.

The compounds detected in residences during the indoor air quality studies do not generally match the compounds that were identified during the GC/MS analyses of the screen material. This implies that the screens were probably not the source of the compounds measured, which are typically associated with a variety of products often found and used in homes.

Based upon the data generated in the above studies, an association between identified screen emission products and the types of health effects that have been reported is not evident. Compounds identified during the screen analysis studies, with the exception of benzene, can generally be described as potential irritants at high enough concentrations. As demonstrated by the results of the residential air samples, identified screen emission products were not present in the air at the analytical limits of detection, which are more than 10,000 times lower than levels considered to be safe in industry, where such compounds are routinely encountered.

Degraded or weathered screen material has been observed to have a irritating or penetrating odor. This odor was very noticeable in a sample from which identifiable concentrations could not be captured by airborne sampling. This indicates that the compound(s) responsible for the odor has an extremely low odor threshold.

Table I. A Summary of Types of Studies Conducted on Emissions from Degraded Polymer Coated Fiberglass Screening Material Manufactured by Phifer Wire, Inc.

Code	Date	Type[a]	Organization
HEG	11/22/91	1,2	Health Effects Group, Inc. 305 E. Ft. Lowell Tucson, AZ 85705 (C. Crutchfield, Ph.D., CIH)
UAB	2/21/92	2	Department of Environmental Health Sciences The University of Alabama at Birmingham 309 Tidwell Hall, UAB Station Birmingham, AL 35294 (R. Meeks, Ph.D., D.A.B.T.)
EC	10/09/92	3	Envirocomp 125 North Elm Street Westfield, MA 01085 (Unsigned)
CEC	4/13/93 (draft)	2,3	Clayton Environmental Consultants 22345 Roethel Drive P.O. Box 8022 Novi, MI 48375 (Ronald C. Poore, IHIT)

[a] 1 - Airborne VOC samples collected from sample of screening material enclosed in glass container, analyzed by GC/MS
2 - Headspace analysis of screening material at elevated temperature by GC/MS
3 - Airborne samples collected in homes with installed screening material

UAB SCHOOL OF PUBLIC HEALTH
Department of Environmental Health Sciences

SUMMARY OF PHIFER SCREENING ANALYSIS

December 1992 - April 1993

In December of 1992, Phifer Wire forwarded to the Department of Environmental Health Sciences at the School of Public Health, samples of various colors of fiberglass screening material, for analysis of the material for compounds that might be released from these products.

Upon receipt of these materials, they were subjected to head space analysis with a gas chromatograph/mass spectrometer at various temperature levels. The results of these studies indicated that at 122°-167° Fahrenheit essentially no chemicals were emitted. At much higher temperatures (exceeding 212° F) extremely low levels of certain chemical compounds were emitted but only at levels that could not be considered hazardous.

In other words, there are no chemical emissions from current production Phifer fiberglass screening that could be considered toxic or hazardous at levels detected in our studies.

May 4, 1993

Robert G. Meeks, Ph. D.
Department of Environmental Health Sciences
University of Alabama
School of Public Health

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STATE OF MICHIGAN

JOHN ENGLER, GOVERNOR

DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN/MARTIN L. KING JR., BLVD.
P.O. BOX 30195, LANSING, MICHIGAN 48909
Vernice Davis Anthony, Director

October 16, 1992

Mr. Freeman
Injury Information Clearing House
Consumer Product Safety commission (CPSC)
Washington, D.C. 20207

1828

Dear Mr. Freeman:

Subject: Phifer Window Screens

This follows our telephone conversation of October 9, 1992. We have received some health complaints from citizens who have used window screens manufactured by Phifer Wire Products, Inc., P.O. Box 1700, Tuscaloosa, Alabama 35403-1700. These window screens were distributed prior to June 1989 (between 1988-89) by the Weathervan Window Incorporated, 4th Court, Brighton, Michigan 48116. It is possible that some of the window screens of the alleged batch may have been sold nationwide.

It has been alleged that as a result of interaction with sun rays these window screens change color and emit toxic compounds causing indoor air pollution. As a result, some citizens have complained of some adverse health effects (allergies and chronic fatigue immune deficiency syndrome [CFIDS]).

We will appreciate if CPSC investigate this alleged problem and take suitable actions (report, advisory, etc.). We will gladly cooperate with the CPSC in obtaining materials and information from the concerned citizens. I hope that CPSC will take up this project. Please write and contact me (517-335-8362) for additional information.

I sincerely look forward to hearing from you at your earliest convenience.

Sincerely,

Kirpal S. Sidhu

Kirpal S. Sidhu, Ph.D.
Toxicologist
Health Risk Assessment

NOV 5 1992

cc: John Hesse
Harold Humphrey

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JAN 1 9 1993

If you have any changes, additions, or comments you wish to make concerning your attached report, please make them in the space below.

I confirm that the information in the attached report (including any changes, additions, or comments I have made) is accurate to the best of my knowledge and belief.

Kirpal S. Sidhu, PhD 1/26/93
Signature Date

☒ I request that you do not release my name.

☐ You may release my name to the manufacturer but I request that you not release it to the general public.

☐ You may release my name to the manufacturer and to the public.

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